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AUTHOR
Holmes, Donald C.

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ABSTRACT
The objectives of this study is to identify the chief problem areas in microform technology and to direct attention to those upon which research should go forward immediately. Its constant focus is the needs of the user. The principal investigator undertook to gather the needed data by indepth interviews with individuals closely connected with all aspects of microform technology and use. These included library administrators, librarians responsible for direct sypervision of microform collections, faculty members and other researchers, students, microform publishers and key personnel of other institutions which use microforms extensively. The data gathered were analyzed, interpreted, and refined in order to determine the more pressing problems involved in full utilization of microforms and what must be done to effect solutions. (JL)

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Determination of User Needs and Future Requirements for a Systems Approach to Microform Technology

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Donald C. Holmes
Association of Research Libraries
Washington, D. C. 20036

July 19, 1969

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U. S. Department of Health, Education and Welfare
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SUMMARY

Introduction

This study of microform technology, "Determination of User Needs and Future Requirements for a Systems Approach to Microform Technology," was occasioned by two basic facts: 1) Microforms have remarkable potential as a tool of education and research in libraries of all kinds. 2) This potential has not been fully realized, especially in libraries serving educational institutions, because of a variety of problems inhibiting their effective utilization.

It is further realized that the serious burdens now borne by libraries, as they attempt to serve both a larger clientele and one whose information needs are broader and much more sophisticated than in the past, could be significantly alleviated if microforms were to be fully and effectively used.

Although there has been much discussion of microform technology in the literature and although most librarians and library users are familiar with the more common complaints about the difficulty of using microforms, there has not been an attempt to seek out and document in a comprehensive manner the most important problems which must be solved if students, scholars and the general public are to reap the full benefits to education and research promised by miniaturization of conventional library materials.

Consequently, the objective of this study is to identify the chief problem areas in microform technology and to direct attention to those upon which research should go forward immediately. Its constant focus is the needs of the user.

Methods and Procedures

The principal investigator undertook to gather the needed data by in-depth interviews with individuals closely connected with all aspects of microform technology and use. These included library administrators, librarians responsible for direct supervision of microform collections, faculty members and other researchers, students, microform publishers and key personnel of other institutions which use microforms extensively.

The data gathered were analyzed, interpreted, and refined in order to determine the more pressing problems involved in full utilization of microforms and what must be done to effect solutions.

In all of his activities the principal investigator was assisted by a consultative panel of seven members, each of which had special expertise in

the areas of microform technology and use.

Findings

There was general agreement among the interviewees that microforms are important carriers of information in libraries. They are especially useful in the acquisition of out-of-print materials and of those materials whose retention is more suitable in microform than in conventional printed format.

The data indicated that libraries are using microforms for a variety of purposes, including the acquisition of materials not otherwise available, the preservation of deteriorating materials, the storage of bulky back files of old newspapers and in the provision of use copies of rare titles.

There also was agreement, however, that the use of microforms had not reached anywhere near its potential because of a number of serious problems involved in their acquisition, cataloging, storage and use. Among the more important problems are the following:

1) The variety of types of microform, each of which demands specialized equipment for its storage and use.

2) The lack of an optimum physical environment for microform use, including proper lighting, temperature and humidity controls, and equipment, including reading machines and furniture.

3) The amount of handling involved in the acquisition, cataloging and use of microforms, which results in loss of and damage to them and serious inconvenience to the user.

4) The lack of an adequate system of bibliographic control of microforms, which diminishes access to them and presents difficulties in their acquisition and cataloging.

5) The lack of sufficient data on the most effective means of administering microform collections.

6) The absence of an effective method of ensuring that all producers of microforms will observe appropriate production standards.

7) The lack of an authoritative structure or procedure which could effect a more rational decision-making process in determining which type of document should be reproduced in an appropriate type of microform.

It was the respondents' belief that microforms will only "come of age" when these and other obstacles to their use are overcome.

Conclusions and Recommendations

A thorough analysis of the data resulted in agreement by the principal investigator and the consultative panel with the major points made by the librarians, students, faculty members and others who had been consulted on the problem.

Consequently, it was decided to recommend in the report of the project that a number of activities and studies should be undertaken whose objective would be the solution of the more pressing problems hindering microform use. Among the more important recommendations are:

1) The establishment of a national microform organization or agency which would provide a structure through which the varied problems involved in microform production, acquisition, organization, housing and use could be systematically studied, evaluated and solved.

2) A study to determine the basic elements of microform systems for educational materials.

3) A study to determine the elements of and standards for the optimum physical environment for microform use, including the design of specialized equipment and furniture.

4) The development of a system of bibliographic control of microforms which would provide ready access to microform publications for librarians and users.

5) The development of reading machines which would accommodate cassettes or magazines, thus obviating the handling problem now involved in microform use.

6) A study to determine the key elements in the administration of microform collections.

7) A study to determine the best method of utilizing microforms to extend the publication programs of university presses.

8) A study of the interaction between computers and microforms, involving the role to be played in information services by computer-produced microforms and the effect of computer-oriented devices and techniques on microform usage.

9) A study of the possible physical and psychological factors involved in the use of microforms.

Future Activities

On the basis of the information gathered during this study, the Association of Research Libraries submitted to the Office of Education a proposal for a continuation of this project. This proposal, entitled

"Determination of the Environmental Conditions Required in a Library for the Effective Utilization of Microforms and Determination of an Effective System of Bibliographic Control of Microform Publications," calls for the performance of two distinct but related tasks.

The first task is to determine appropriate standards for the best physical environment for the acquisition, cataloging, storage and use of microforms. The second is to determine the elements of an effective system of bibliographic control of microforms, which would permit the expeditious selection, acquisition, cataloging and use of micro-publications, both current and retrospective.

The Office of Education has agreed to fund this continuation proposal for a period of one year.

CHAPTER I: INTRODUCTION

The decision of the Association of Research Libraries to embark on a study of microform technology was prompted by the knowledge that the full potential of microforms as a tool for instruction and research in libraries has not been realized. Further, although there has been much discussion of microform usage in the literature, there has not been an attempt to seek out and document in a comprehensive manner the most important problems which must be solved if libraries and their users are to reap the full benefits to education and research promised by miniaturization of conventional library materials.

When microforms became a generally accepted carrier in libraries for the storage and dissemination of information several decades ago, remarkable improvements in library services were projected. The relatively small amount of space required to store information in microforms was seen as a solution to the open-ended need of libraries for stack space; the inexpensive page costs of microform publications promised a beneficial impact on the constantly rising budgets for library materials; and it was envisaged that with the predicted improvements in microform technology the time would not be far off when a library user could afford to have a considerable library of his own at a modest cost, thus reducing his reliance on traditional library collections and services.

In general, however, this situation has not come to pass. Although librarians, students and scholars freely admit that microforms have made available important materials which otherwise could not be obtained, there has been a reluctance on the part of both librarian and library user to visualize microforms as anything but substitutes for the printed page--and not very good substitutes at that--except in certain cases, such as the storage and use of back files of newspapers and of journals.

Among the difficulties posed by extensive reliance upon microforms is the lack of a systems approach to microform technology which would allow efficient use of the variety of microforms which are available today. Microforms include 35 mm film, 6" x 9" opaque sheets of microprint, 16 mm microfilm on reels, microfilm in cartridges, microfilm mounted in various types of cards, microfiche of varying sizes and microcards. Each of these formats has, or is alleged to have, certain advantages over the other formats. It seems probable that some of the formats are better suited to certain types of original materials than others, although there is no agreement on this question. Since most large libraries have extensive holdings of the various micro-formats the application of a systems concept to microform technology must be developed which would make suitable provision for the use of these collections.

As is to be expected, the various formats in which micro-publications are provided require suitable reading devices. Some of these devices

are capable of accepting more than one format; others are limited to a single format. Some of the reading devices permit the use of the micro-publication without damage to the material, whereas others may easily result in damage to the surface of the micro-publication. This, in turn, makes it less satisfactory for future users and shortens its life.

Another inhibiting factor to the full utilization of micro-publications is that their production is not governed by uniform standards of quality, either in the technical photographic sense or in the care with which the finished product is put on the market. Because libraries and educational institutions acquire micro-publications in large quantities, it is impossible to check each item received to be certain that it meets appropriate standards. Hence, these institutions must depend on the producer to maintain quality control. Regrettably there have been instances in which it has been found long after the acquisition of a micro-publication that a substandard product, which is difficult or impossible to use, has been supplied.

A further difficulty is that the user of microform materials is confused and discouraged by the various forms of material and the different devices that must be used in reading these several forms. He must be instructed in the use of each of these pieces of equipment if damage to the equipment and to the micro-publication is to be avoided.

Therefore, the library, school or agency which undertakes to provide microform service must be aware of the variety of forms available, be able to judge those forms best suited for different purposes and should be in a position to evaluate micro-publications that are offered for sale. This requires technical competence in judging such matters as reduction ratios, resolution, type of film, thoroughness and care of processing, etc. Once materials have been acquired, each format requires a special type of housing which is often expensive and may be inconvenient to provide. Similarly, with respect to the reading devices, the agency supplying the service must be sure that all of the micro-publications it acquires can be read with the equipment available. Most libraries have found it necessary to invest in a number of different types of readers, each of which must be maintained, serviced, explained to the reader, etc. Moreover, it seems that most of these machines have been designed without sufficient attention to human needs and comfort, thus making them inconvenient and unsatisfactory for many readers.

Nevertheless, in spite of the obstacles to be overcome, research in microform technology must be carried forward in order that microforms will take their rightful place as efficient carriers of the vast quantities of information needed by students and researchers today.

Consequently, the objective of this study is to identify the chief problem areas in microform technology and to direct attention to those upon which research should go forward immediately. Its constant focus is the needs of the user.

CHAPTER II: METHODS AND PROCEDURES

In July 1968, Donald C. Holmes, formerly chief, Photoduplication Services, Library of Congress, assumed his position as both project director and principal investigator for this microform technology project.

During the month of July, he met each week with Stephen McCarthy, executive director of the Association of Research Libraries, and Louis Martin, associate executive director, in order to determine a schedule of activities for the project. The membership of the consultative panel was decided upon and letters of invitation were mailed. All seven individuals invited agreed to serve. They were: Lyman H. Butterfield, the Adams Papers, Massachusetts Historical Society; Richard DeGennaro, senior associate librarian, Harvard University Library; Charles LaHood, chief, Photoduplication Services, Library of Congress; Carl Nelson, consultant, International Business Machines; Peter Scott, head, Microreproduction Laboratory, Massachusetts Institute of Technology; Carl Spaulding, systems specialist, Council on Library Resources; Allan Veaner, assistant director for automation, Stanford University.

It was decided during these meetings that the best method of gathering the data for the project was a series of interviews with library administrators, librarians responsible for direct supervision of microform collections, faculty members and other scholars, students, microform publishers and key personnel of other institutions which use microforms extensively.

Prior to beginning the interviews, Mr. Holmes did a thorough literature search. He consulted a number of bibliographies and reviewed numerous articles listed in them and many others suggested by associates which were relevant to the project. The best of them were gathered, reproduced and forwarded to members of the consultative panel for their study prior to the first meeting of the panel in September.

Mr. Holmes also drafted "interviewing guides," consisting of questions designed to elicit from interviewees their experiences in administering and using microform collections. This guide also was sent to the panel for its review.

The first meeting of the consultative panel was held September 12-13, 1968, in Washington, D. C. The purpose and scope of the project were thoroughly analyzed and refined. The discussion produced a consensus that the development of a systems approach to microform technology demanded that all affective circumstances surrounding the use of microforms must be taken into consideration. There was complete agreement that the study must focus upon the needs of the user. It

was decided that Mr. Holmes, with the aid of the panel, would attempt to ascertain and document those problems which must be resolved if microforms are to be used to maximum advantage in education and research. The panel agreed with Mr. Holmes that the procedure should involve in-depth interviews with individuals who could provide relevant data.

Suggestions were then made for improvements in the interviewing guides which Mr. Holmes had prepared, and a tentative list of organizations and individuals which should be visited and interviewed also was drawn up.

Following the meeting, Mr. Holmes reworked the interviewing guides--one to be used for interviews with administrators and curators of microform collections; the other to be used when interviewing users of microforms--in light of the panel's suggestions (see Appendix A). The list of prospective interviewees also was refined.

From November 1968 through the early part of January 1969, Mr. Holmes and panel members visited twenty-six institutions and interviewed or consulted eighty-five persons (see Appendix B). The panel also submitted its views on the subject.

During the course of his interviewing trips throughout the country, the principal investigator received the full cooperation of library administrators and the personnel of other organizations visited. They expressed themselves freely on the subject of microform use and arranged meetings with members of their staffs who were familiar with the day-to-day routine of ordering, cataloging, inspecting, handling and servicing microform collections and the related hardware for using them. In addition to staff personnel, a number of individuals were interviewed who were recommended by microform reading room attendants and others because of their more than casual use of and experience with microforms.

The interviewees were informed that the published report of the survey would provide a composite of all comments made and would not ascribe data to individuals. It is believed that this assurance of anonymity assured a free discussion and complete disclosure of existing conditions and views. Every effort was made to elicit the personal opinions of those interviewed and to avoid the sterotyped responses often evoked by formal questionnaires.

It should be noted that interviews conducted by several panel members produced findings which were practically identical to those recorded by the principal investigator.

Before the second meeting of the consultative panel, a digest of the collected data was sent to the panel members for their study.

The second meeting of the panel was held January 7-8, 1969, in Washington, D. C. The responses of the interviewees were thoroughly discussed. The panel concluded that the data gathered were sufficiently comprehensive and representative to obviate further extensive interviewing.

The balance of the meeting was devoted to a discussion of the basic conclusions to be drawn from the data and to the development of an initial list of topics which could serve as the basis of the recommendations for future studies to be submitted to the Office of Education.

Subsequent to this meeting, the principal investigator, with the assistance of the ARL office, prepared a draft of that chapter of the interim report which would deal with conclusions and recommendations. This draft was sent to the panel members and its revision was the subject of the third and final meeting of the consultative panel, which was held May 1-2, 1969, in Washington, D. C. The discussion at this meeting resulted in another draft of the chapter in question, which was then sent to the panel members for their further comments.

During this last meeting, the panel also reviewed the proposal for continuation of the project which the ARL office had submitted to the Office of Education in April, 1969.

CHAPTER III: FINDINGS

The following data were obtained by the principal investigator and the consultative panel from interviews conducted during November 1968-January 1969. The headings used are those of Interviewing Guide "A" (see Appendix A).

General: Identifying and Defining the Problem

1. The survey has indicated that libraries are using microforms for a variety of purposes. In order of importance as indicated by the interviewees, they are as follows: 1) to acquire materials not otherwise available; 2) in lieu of binding serials. Serials are generally made available to readers in printed form while demand for them is high. When the demand decreases, the originals are discarded and microform copies are substituted; 3) to preserve deteriorating materials; 4) to store bulky materials, such as backfiles of old newspapers, which would take a great deal of space in their original formats; 5) to provide use copies of rare materials in order to protect originals from loss or damage from frequent use; 6) to publish information of limited interest; 7) to produce intermediate copy necessary to the production of facsimile copies.

2. The majority of libraries visited maintained a central microform reading room separate from a general reading room. Other microform reading machines were housed in branch libraries and in those areas of the main libraries devoted to special collections.

   Staff supervision of microform reading machines was reported to be generally much less than desirable, because of insufficient staff. However, there were some reports of moderate to close supervision by the library staff of the use of reading machines.

3. Approximately one-half of the respondents believed that neither the environment nor the facilities available for the use of microforms were conducive to their proper use. A number of respondents were quite emphatic on this point. Some believed that the environment and facilities offered were partially satisfactory, while several reported they believed those provided in their institutions to be completely satisfactory.

   A commerical microform producer commented that conditions for the use of microform reading machines in many customer locations are very unsatisfactory.

A second commercial microform producer commented that facilities provided in many customer microform installations are entirely inadequate for the satisfactory use of microforms.

A microform publisher stated that many of his products were used by customers in locations that are most unsuitable for reading microforms.

A well informed microform consultant commented that for every good microform reading room installation there exist ten that are poor.

It would be fair to say that a majority of the respondents to this question believed that work space provided for microform usage by many institutions is very inadequate; that reading machines are often placed near windows and in rooms where ambient light cannot be controlled; that reading machines are often placed in stack aisles where their users are often interrupted by other library patrons; and that dust and dirt are so bad in some cases that damage to both microforms and reading machines is commonplace.

4. Most users of microform reading machines are left to load and unload the machines. Initial assistance is given by the reading room attendants to those who have no experience with the machines. Only one respondent stated that microforms were always placed in reading machines by a member of the library staff.

   One commercial producer commented: "Most reading machines and microforms are left to the mercy of anyone who comes along."

5. Microform readers are, in nearly all cases, used by the general public. ("General public" is here defined as the patrons of any institution using microforms.)

6. Comments concerning frequency of damage to reading machines by users ranged from "seldom" to "often." Rough handling was believed to be an important cause of damage when it appeared. It was also the opinion of some well informed librarians that many reading machines were not adequately maintained and were permitted to gather dirt and dust. These in turn caused damage to the optics and glass flats. Advancing cables, glass flats and cracked optics are the components most frequently damaged.

7. Most of the organizations visited had in-house facilities to accomplish minor repairs of microform reading machines. When required, service men usually responded to calls within one-half to three days. One of the micro-opaque readers must be returned to the factory for repairs. Shipment and repairs normally require a month or more.

Inoperative reading machines did not seem to be a cause for concern among the interviewees.

8. All microforms require more delicate handling and care than full-size library materials. Damage to microforms is caused by careless and inexperienced users, wear from frequent use and by poorly maintained reading machines. Roll microfilm is often damaged by being incorrectly threaded in reading machines, by the use of damaged reels, by malfunctioning optical flats and by the accumulation of dirt and film emulsion on the flats. Some domestic and many foreign microform producers are supplying roll film with poorly fastened splices, which often break and cause tears in the film, and with scratches and abrasions. The fingerprints of users, complete with food particles, often smudge the film. Fingerprints cause the accumulation of "goo" on optical flats, which, in turn, accelerates the gathering of dirt and resultant film damage.

   Microfiche, microcards and microprint sheets all must be individually handled while being positioned in the readers and when they are removed from the machines. Since the average microform sheet and card contain many fewer frames or pages than an average microfilm roll, they are generally handled more frequently during machine viewing. This added handling increases the hazard of contaminating the microforms and increases the danger of damage to both them and the machines used in viewing them.

   The most repeated complaint about the use of microform sheets and cards for library materials was the inordinate amount of time required to replace them in proper order after each usage. This often results in loss or improper filing. Several complaints also were made about burn damage to micro-opaques when they are used in reading machines for prolonged periods.

9. A few interviewees believed that presently available reading machines were adequate for reading requirements. Others commented that the reading machines were reasonably adequate but they would like the overall quality of screen images improved.

   However, the majority did not believe any available microform reading machine was adequate for prolonged use.

   Most respondents commented that reading machine advancing mechanisms and arrangements for positioning and removing microforms were generally clumsy and awkward. The quality of reading machine images seldom compared favorably to the original document. There were suggestions that reading machine images of microforms might be more readable if the magnification were increased to provide images slightly larger than those found in the original material.

Further, the centers and corners of screen images were often not equally sharp and most screen images were not sufficiently bright to be viewed with ease in a normally lighted room.

The usual height and angle of reading machine screens require the reader to be in a disciplined position which must be maintained with little variation for the duration of use.

10. In identifying particular types of microforms believed to be best suited for particular types of library materials, a very large majority believed that roll microfilm should be used for miniaturizing serials, monographs and manuscripts. These respondents also thought that microfiche was ideal for miniaturizing report literature. There was a general consensus that roll film, installed in cassettes for use in a suitable reading machine, would be highly desirable if the cost were not prohibitive.

    A librarian, who has used microforms extensively to supplement full-size materials and as a substitute for them in rounding out the collection of a new library, stated that he does not believe it possible to solve the problems of administering collections of fiche, cards and microprint for general library use because of the problems of damage, loss, misfiling, etc. He has found roll microfilm reasonably satisfactory and believes that it could be made much more manageable if installed in cassettes and used in a reader designed for their specific use.

    Several respondents believe that both fiche and aperture cards might be useful in very special library applications.

    A director of a university library, who has been closely associated with the development and use of microforms for many years, commented that roll microfilm would become more generally acceptable if offered in a reasonably priced cassette, provided a satisfactory reading machine were offered to accomodate the cassette. Cassettes would eliminate direct handling of the microform and would go a long way toward eliminating mechanical problems of threading and damage now associated with roll film. He further observed that if fiche and cards were generally and freely used, the bibliographic integrity of library materials would often be violated. Such violations, he thought, should be permitted only when there is an overwhelming reason for them.

    Another respondent commented that if a standard cassette for roll microfilm could be agreed upon and if a satisfactory reader for it were developed, roll microfilm would be preferred for a large majority of library applications where microforms are indicated.

<u>Holdings and Acquisition Policy</u>

1. 35mm roll film has been, and is presently, being used extensively for acquiring a variety of library materials, with some emphasis on newspapers. Government documents, republished series, and

special collections of monographs offered by microcard publishers account for large holdings of microcards and microprint. Microfiche acquisitions have generally been limited to scientific and report literature obtained from the Department of Commerce Clearing House in Springfield, Virginia.

The average growth rate of microform collections is reported to be from 10% to 15% per year.

2. The acquisition of microforms by libraries is reported to be both planned and incidental. The acquisition of microfilm copies of newspapers is planned, while the acquisition of government documents and of scientific material obtained from the Department of Commerce Clearing House is thought to be incidental because this material is available only in microform. It was reported that the largest portion of library budgets for microforms is used for planned acquisitions.

3. There was general agreement among the interviewees that publishers' lists and catalogs and news releases were useful in determining what is available in microforms. However, a number commented that it would be most helpful if all of the data on available microforms could be combined in a single publication, which would be kept current and which would be published with full bibliographic annotations. There were complaints about the practice of microform publishers announcing projects which depended upon a sufficient number of subscriptions for implementation. This practice causes librarians to obligate funds which may be lost if the publishing project is delayed and the money is not actually spent during a specified period of time.

4. Most respondents indicated that if a desired title is not available in original format at a reasonable cost, purchase in microform is considered.

   All interviewees stated that 35mm roll film is preferred for newspapers.

Quality, Maintenance and Servicing of Collections

1. All libraries visited had facilities for making facsimile prints from microforms. Only three rely exclusively on reader-printers for these prints. All respondents complained about difficulty with reader-printers. All institutions offered prints to their patrons upon payment of a fee.

2. Most libraries either do not inspect microforms for bibliographic and technical quality or do so in a most casual way. With such a lack of proper inspection practices, readers discover deficient microforms at a future time, generally too late for the library

to do anything about them. Some libraries do devote considerable time to inspecting microforms and find both bibliographic and technical quality wanting.

3. Few libraries have the staff time to inspect microforms after each use. Inspections that have been made revealed that occasionally pieces of roll microfilm had been cut out and taken by library patrons. Five institutions reported this phenomenon. Further, fingerprints, replete with the aforementioned food particles, were often found on the surfaces of microcards, microfiche and microprint.

4. A majority of institutions visited stored reels of microfilm, microfiche and microcards in specially designed slide-drawer cabinets. Others stored microfilm, housed in cardboard boxes, on regular library stack shelves and used a variety of wooden and metal slide-drawer cabinets for storing microfiche and microcards. Microprint sheets are placed on regular library shelves, housed in the special boxes supplied by the publishers.

   Most, but not all, areas in which microforms were stored were air-conditioned. However, no special temperature and humidity controls were provided for microforms.

5. Master negatives were housed in separately designated stack areas or in juxtaposition to those stack areas housing use copies. Consequently, they experience the same temperature and humidity as other library materials.

6. Master negatives are normally reserved for reproduction purposes. However, some libraries find it necessary, in the absence of positive copies, to provide master negatives for reading machine use.

7. The use of specially designed slide-drawer cabinets by a number of institutions has reduced some of the problems of storing microforms. Comments concerning the shelving of microforms were as follows: 1) when stack shelves are filled, some microforms are pushed to the rear and subsequently lost; 2) the storage of roll microfilm is not difficult, but other microforms are often misfiled, which means they are lost; 3) microforms are sometimes difficult to shelve because they cannot be marked easily; 4) boxes containing film and film cassettes are not as difficult to house as fiche with their envelopes; 5) microforms are lost and misshelved because readers have access to them; 6) specially designed stack shelving would be useful in housing the various types of microforms.

Production and Processing of Microforms

1. Most of the libraries visited had facilities for exposing 35mm

roll microfilm and 16mm roll microfilm with the use of an adapter kit. None had a step-and-repeat camera in regular use.

2. Practically all institutions that had camera facilities had facilities for in-house film processing.

3. Twelve institutions had facilities to produce 35mm film copies and five had facilities to produce film copies of microfiche.

4. A large majority of institutions reported that up to 98% of their microform acquisitions is purchased from microform publishers. Four institutions reported that in-house produced microforms accounted for 96%, 80%, 35% and 35%, respectively, of their total microform acquisitions.

Bibliographic Control and Access to Microforms

1. There were a variety of answers to "What problems are experienced in cataloging microforms?" The range of answers included the following: There are no problems; There are no problems except markings; The need to use a reading machine slows cataloging; Problems in descriptive cataloging result from having to describe sheets, frames and rolls; Irregular quality of targets requires added time for verification; Cataloging microforms is a "snake pit" with many unsolved problems; Catalogers put microforms on bottom of pile; Limited number of personnel experienced with microforms causes delays; There are not enough catalogers to keep up with the work load; Catalogers real or imagined problems in working with microforms cause them to put microforms aside, resulting in a constant backlog.

2. Most respondents stated that there has been gradual improvement in the arrangement of material before it is committed to microform. However, they thought constant pressure must be exerted to further upgrade the bibliographic quality of microforms. All agreed that the cataloging of large microform projects should be the responsibility of the producer.

   Some pertinent comments on this subject were as follows: The bibliographic data provided is often inconsistent; existing standards and specifications (ALA microfilm norms) should be enforced; foreign produced projects often present real problems; librarians,acting through ALA and ARL, should cooperate in requiring improved microform quality; librarians should refuse to purchase microforms unless they meet standards and specifications; librarians should organize a corporation to undertake large scale microform projects; there should be a cooperative agency for cooperative testing of the quality of all microforms.

3. Microform collections were generally separated from other library collections but were most often shelved in adjoining stacks.

Most, but not all, institutions gave their microforms full cataloging and most assigned a sequential number for convenience in shelving.

Reader Habits and Attitudes

1. There were individual preferences expressed for reading machines with translucent type screens and for those with the opaque, reflective type. The majority of those interviewed who were in charge of microform reading rooms believed the opaque, reflective type of screen was preferred by most users because the screen image is brighter and it provides better contrast between background and text. Individuals who wear bifocal eyeglasses or strong magnifying reading glasses have a definite preference for translucent screens because of the focal distance requirement imposed by the eyeglass lenses.

   Several researchers who are working with early American newspapers expressed a preference for the Recordak, Model C, library reader (manufacture has been discontinued) because of its ability to enlarge the screen image text to a size greater than the original.

2. There were some complaints about eye strain associated with using microforms and reading machines. Most complaints are made by the casual user. Experienced microform users seldom complain.

3. When given a choice, readers choose hard copies in preference to microforms (newspapers excepted).

4. Whenever feasible and when they are not personally responsible for the cost, readers do demand blowup prints. By a margin of two to one, respondents indicated that blowups from reader printers do not satisfy reader requirements. It was regularly reported that trial exposures were required and high wastage was normal when working with library microforms.

5. Readers seldom expressed a preference for particular types of microforms. They use whatever is available. They have no choice.

General Response to Microform Usage

1. There were a variety of responses to the question on the general evaluation of microform usage. Some of them:

   There should be more cooperative filming of newspapers in order to fill gaps in backfiles.

   There should be an information clearing house which would report on microfilm projects being undertaken.

   Microform projects should be completed regardless of the number of purchasers.

   There is a need for a "universal reader" which would accommodate microfilm reels, cassettes, fiche and opaques.

Readers should be improved so that they would not damage microforms.

Reading equipment should be generally and greatly improved with more attention given by producers to finding aids.

There is a need for a good portable reading machine which could be loaned along with microforms.

In the future there will be increased use of microforms as an intermediate for hard copy and in the machine retrieval of information.

There is a real need for a rapid and inexpensive means of providing printouts from microforms.

There must be adequate optics and engineering to provide first quality printouts.

A reader-printer should be developed which would produce full-size facsimile prints of text and pictorial materials.

Microforms are invaluable for the acquisition of materials not available in other forms.

Microforms should be used to provide the widest dissemination of library materials.

A breakthrough is needed in automation as applied to production and use of microforms.

The future use of microforms should provide for automatic retrieval.

Microfiche is valuable because it can be made available for loan.

Microforms are valuable because they mitigate the space problem in libraries and are less expensive to acquire and preserve than hard copies.

Microforms should facilitate the development of a comprehensive system of information identification and retrieval.

There may be developed a means of using television screens in the homes for reading various types of microforms.

Microforms have a real role to play in the publication of research tools and for the storage of data which can be located and retrieved via computer.

Microforms could be used to speed up the availability of current materials.

Many information systems not in use today could be viable with improved hardware and quality microforms.

Color microfilm for maps and works of art would be very helpful.

2. There are complaints from readers because desired library materials are available in microform only. Everyone seems to prefer hard copy, except for newspapers. However, most readers are happy to have the material they require and do not complain.

3. Complaints are not uncommon with regard to all of the problems

mentioned in the interviewing guide, for example, images which are either too dark or too light or too fuzzy, text in gutters of volumes not readable, etc. There are far more complaints about foreign produced microforms than about those produced in the United States.

4. There were some complaints about improper reduction ratios used in the production of microforms. However, they were infrequent.

5. Except for newspapers, readers do not find microforms satisfactory for browse searching.

6. There were a number of interesting overall observations expressed. For example, a number of respondents stressed the importance of a microform reader carrel that would be a complete module. It should possess all of the requirements for ambient light control; it should provide auxiliary work space for note-taking and for a limited number of reference books; and the screen should be easily adjustable to the requirements and comforts of an individual.

There was a consensus that microform readers are generally inadequate as substitutes for reading hard copy. Manufacturers should give much more attention to user habits and requirements and to eliminating the many mechanical operations, such as threading, inserting and positioning microforms.

Much more attention should be given by producers of microforms to the bibliographic and technical quality of microforms. There was general support for an inspection and certifying agency, available to all libraries, which would pass on the suitability of any microform. This agency would go a long way toward improving the quality of microforms.

CHAPTER IV: CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The data gathered during this study support two general but very important conclusions:

1. Microforms are essential to the information services offered by all types of libraries.

2. The use of microforms will not reach its full potential until a number of serious problems are overcome. These problems involve more adequate microform equipment, adherence to quality production standards, more effective distribution, and improvement in the organization, handling and administration of microforms within libraries.

There is no doubt that microforms are an important part of the information resources of the Nation's libraries. If present publication trends and growing library needs continue, their value to instruction and research will increase substantially.

There are a number of reasons for the importance of microforms. Through their use, out-of-print materials, which are costly and difficult to find in the normal book trade channels, can be made available to libraries at relatively modest prices; large masses of printed materials--back files of newspapers and of journals, government documents, etc.--can be purchased, organized, housed and used in a convenient manner; valuable research publications, which have a limited audience, can be reproduced quickly and upon demand at moderate cost; storage space in libraries can be utilized more effectively; and new and emerging libraries can build their collections rapidly. All of these factors assure the permanent place of microforms in library collections.

In spite of their value, however, microforms have not been used effectively by the academic community, especially as a valuable substitute for and as a supplement to other information media. This situation prevails because of a number of difficulties which the library patron and the library administrator encounter in utilizing microforms.

Because of inadequate bibliographic control, it is often difficult for a library patron to determine precisely and quickly what information is contained in the microform collection in a given library. When he does discover that the information he needs is available in microform, he is then faced with manipulating reading machines with which he is often unfamiliar and the use of which certainly lacks the ease of opening a book to a specific page. Further, there is always the chance that once the microform has been secured and placed within the reading machine the reader will find that the film, card, sheet or fiche either is of poor quality or has been damaged through handling.

The library administrator hesitates on occasion to acquire microforms because he is not sure of receiving a uniformly produced quality product, and because the processing of microforms into his collections often involves difficulties not experienced with conventional library materials.

It is not surprising then that libraries at times approach the acquisition of microforms as a last resort, even though their superiority is freely admitted with respect to housing, preserving and using back files of newspapers and of journals, a great many government documents and similar materials. In the main, however, microforms are used by librarians as "substitutes"--in the full pejorative sense of that term--for conventional materials.

Since microforms are relatively new and are different, users may not be immediately enamored of them; they may accept and use them only as a source of important information which would not otherwise be available. On the other hand, while it may be difficult to bring about a love-at-first-sight romance between readers and microforms, a growing friendship and a useful working relationship is not only desirable but necessary if microforms are to fulfill the role originally envisaged for them in the educational process.

In the preceding chapter we have observed that the problems faced by library administrators, scholars, students and researchers in the acquisition, organization, handling, storage and use of microforms are many and varied. Among the most important problems are the following:

1. The purchaser of microforms, whether a library or an individual, has no positive means of evaluating the technical quality of the product. There is not yet an effective method of ensuring that all producers of microforms will observe appropriate production standards. In fact, there is need for more and better quality standards to be established by recognized standards organizations. Further, microform publications are sometimes deficient in their "scholarly apparatus," such as proper editing and the inclusion of sufficient targets and guides for the reader.

2. There is no organized and authoritative structure or procedure which can effect a more rational decision-making process in determining which type of document should be reproduced in an appropriate type of microform. A solution to this problem would lead to greater uniformity, efficiency and cost savings.

3. It is generally true that a systems approach has not been developed in libraries for the efficient utilization of microforms. As a result, serious incompatabilities arise, for example that which presently exists between the microforms and the equipment used to organize, house and use them. A result of this lack of a systems approach has been the proliferation of types of microforms--roll films, cartridges, cards, sheets and microfiche.

This proliferation, in turn, has resulted in a variety of types of equipment required to use them.

4. Effective equipment and procedures for acquiring, cataloging, storing and using microforms in libraries is not available. In point of fact, it is probably true that the design for an optimum environment for the use of microforms has not been developed.

5. The use of microforms at present involves frequent handling. This handling under inadequate environmental conditions often results in serious damage to microforms.

6. Librarians and library users do not have full access to microforms because of insufficient bibliographic control, due partially to lack of an appropriate system which results in serious delays in cataloging.

7. Many reading machines now in use cause microforms to be damaged while in the machine.

8. Sufficient information is not available concerning the physical and psychological factors which may determine the response of library patrons to microform use.

9. The library personnel responsible for microform equipment and for providing service to the users of microforms are often ill-trained.

All of these problems require attention if microforms are to be effective instruments for the transfer of information. If solutions to them are not found, libraries will continue their attitude of caveat emptor when purchasing microforms; library administrators and users will continue to have inadequate access to microform publications because of insufficient bibliographic control; and library users will not be able to make efficient and willing use of microforms because of the poor physical environment which is often provided for their use.

It is imperative, therefore, that both Federal agencies and private organizations continue their studies on, and experiments with, microform technology systems and equipment.

Recommendations

The analysis and interpretation of the data collected during this study indicate that the implementation of one or more of the following recommendations would lead to more effective, enthusiastic and wider use of microforms in libraries.

1. A permanent, national microform organization or agency should be established. The consultative panel to this project and the principle investigator are in complete agreement that the establishment of this agency is the most important step which could be taken to facilitate the

increased and more effective use of microforms. It would provide a structure through which the varied problems involved in microform production, acquisition, organization, housing and use could be systematically studied, evaluated and solved. It could, for example, develop methods and procedures for testing microform products. If properly staffed, the agency also could perform the requisite tests. There is no doubt that microform products need a "seal of approval," established and supported by an expert, disinterested organization. The proposed national microform agency could be the source of that seal. It also could serve as a consulting agency for both the manufacturer and the user of microforms and could provide expert advice on microform systems.

The importance attached to the establishment of this agency can not be emphasized too strongly. Ultimately, the long-range and permanent solutions to the problems involved in microform usage depend upon the existence of such an organization.

2. A study should be undertaken to determine the basic elements of microform systems for educational materials. Since any system requires cooperation among micro-publishers, libraries, microform producers, equipment manufacturers, standards organizations and users, it is essential to organize in a formal manner the communication process among these parties. Emphasis will have to be placed upon the mutual compatability of all components within a system and the compatability of one system with others.

It is proposed, therefore, that a study be made which would have the following objectives:

a) Isolate, evaluate and classify the essential elements of a total systems approach for educational materials in microform.

b) Provide performance requirements for such systems as a guideline for manufacturers, libraries and users. The guidelines must assure the compatability of the systems components and, as far as possible, facilitate interaction among different systems.

c) Recommend an optimum organization for libraries which would ensure cooperation among all parties involved and which would evaluate any proposed micro-system in view of the needs of the users, administrators and producers of microforms.

3. A study should be undertaken which would determine the elements of and standards for the optimum physical environment for microform use. This study would look into the need for and the design of specialized equipment and furniture for microform usage. It would consider the physical facilities needed for the expeditious acquisition and cataloging

of microforms. (This aspect of the study undoubtedly would involve furniture and equipment but it also would look into such matters as appropriate lighting for work with microforms and temporary storage conditions at work stations for the microforms, themselves.) Further, it would concern itself with permanent storage conditions for microforms, including a periodic review of storage standards which have been developed but which are subject to change as new research is performed on temperature, humidity and lighting. Of particular importance would be the development of an efficient microform reader station which would allow flexibility in the positioning of the reading machines, in the posture of the user and in the control of necessary lighting. This reader station might take the form of a self-contained study carrel or the study might result in a design of a microform reading area whose components would be designed specifically for easy and effective use of microforms. Additionally, this study would focus upon the requirements of a system for lending both microforms and reading machines for individual use off library premises.

4. A system of bibliographic control of microforms must be developed which will provide ready access to microform publications for both librarians and users. This system undoubtedly would involve an up-to-date catalog of available microforms and also would provide for the rapid production and distribution of cataloging copy for all microform publications, both current and retrospective. The cooperation of microform publishers would be a key element in any such system. Further, this system would have to take cognizance of the important work being done on this matter at the Library of Congress, which at present issues several catalogs of microform publications which could serve as a basis for a more comprehensive and detailed system of bibliographic control. These publications include the National Register of Microform Masters, Newspapers on Microfilm and the National Union Catalog of Manuscript Collections.

Librarians throughout the country agree that the development of systematic procedures for bibliographic control of microforms is absolutely essential if their potential for instruction and research is to be realized.

5. Manufacturers of reading machines should be urged to develop reading machines which could accommodate cassettes or magazines which would be designed for the various types of microforms. These machines would minimize the damage resulting from handling and would maximize easy use. The machines should radically simplify the procedure of threading and/or positioning the microforms.

6. A study should be undertaken to determine the key elements involved in the improved administration and servicing of microforms in libraries. Such factors as the economics of microforms, staff service to the user, the location of microforms in libraries, the "packaging" of microforms, the development of master files and use files, etc., all should be part of this study.

Unless a thorough analysis of the organization of microforms for

library use is accomplished, all other problems of microform technology could be solved and yet the user would still be faced with serious difficulties in the use of microforms.

7. A study should be undertaken to determine how to utilize microforms to extend the programs of scholarly publications by university presses. It has been pointed out that microforms allow libraries to purchase scholarly publications which by their very nature appeal to a very limited audience. University presses traditionally have been involved with the publication of just such titles. These presses, however, have not as yet been encouraged to consider publishing materials in microform. Owing to the greatly increased cost of conventional modes of publication, there is every possibility that the publishers of scholarly monographs could utilize microforms to advantage as an original publication format, as a reprinting process, or as a supplement to materials published in book form. For example, a multi-volume publication of important personal papers could be supplemented by microforms which would contain information left out of the printed volumes. This might include editor's notes, tables, charts, figures or other ancillary information. This type of publishing is now being done by the American Society for Information Science.

If university presses would involve themselves in microform publications, it is conceivable that a whole range of new material could be made available to libraries.

8. Research should be carried out on interaction between computers and microforms. Two areas of interest would be:

a) The role to be played in information services by computer-produced microforms;

b) The effect of computer-oriented devices and techniques on microform usage and the use of the computer for identification to aid in retrieval of materials in microform store.

9. A comprehensive and in-depth study of the possible physical and psychological factors involved in the use of microforms should be undertaken. At this time, insufficient information is available as to the basis for reader attitudes toward microforms. Some of the negative responses may stem from possible physical and psychological difficulties inherent in the use of microforms. Research on this subject is now being conducted by the Denver Research Institute, and some tentative conclusions, with respect to reading speed and the comprehension of materials in microform in a laboratory situation, have been reached. Although a number of studies have been made on this matter, they are inclusive.

The possible physical and psychological effects of microforms on readers are matters of no small importance. If there are inhibiting factors in these areas, they must be determined if further improvements in microform technology are to be ultimately beneficial.

These recommendations indicate a number of the more important tasks which must be undertaken if microforms are to be effectively used in libraries.

CHAPTER V: FUTURE ACTIVITIES

As a result of the information gathered during this study, the Association of Research Libraries submitted to the Bureau of Research of the Office of Education a proposal for a continuation of the project. This proposal is entitled, "Determination of the Environmental Conditions Required in a Library for the Effective Utilization of Microforms and Determination of an Effective System of Bibliographic Control of Microform Publications." The Office of Education has agreed to fund this project for a period of one year.

As indicated in the title of the proposal, two separate but related tasks will be undertaken. The objective of the first is to determine appropriate standards for the best physical environment for the acquisition, cataloging, storage and use of microforms. This environment should be conducive to the efficient performance of microform-related work by library staff members and it should provide for the comfort and convenience of microform users. The study will attempt to determine the design specifications for a prototype "microform study carrel" and/or for the elements in a larger microform "study area."

The objective of the second task is the determination of the elements of an effective system of bibliographic control of microforms, which would permit the expeditious selection, acquisition, cataloging, and use of micro-publications, both current and retrospective. The cooperation of both libraries and publishers will be sought in order to effect the recommendations resulting from this portion of the study.

The project director for this study will be Donald C. Holmes who also will serve as principal investigator for the first of the two tasks. Each part of the study will have its own advisory committee, made up of individuals with experience in the subjects under consideration.

The findings of this study will be distributed as widely as possible, especially to new and emerging institutions of higher education which will probably make extensive use of microforms.

APPENDIX A

ARL MICROFORM TECHNOLOGY PROJECT

Interviewing Guide "A": For use when interviewing persons with responsibility for microform collections

GENERAL: IDENTIFYING AND DEFINING THE PROBLEM

1. What is the principal purpose or function of your organization?

2. Does your organization make use of microforms? For what purpose?

3. Does your organization have microform reading machines? Are the machines located in a room separate from a general reading room or other work area? Is the use of the machines closely supervised by staff?

4. Are the environment and facilities in the room in which your microform readers are located conducive to the use of microforms? For example, are there ambient light control, and dirt and dust control? Is the room air-conditioned or otherwise adequately ventilated? Are there functional auxiliary work tables, etc.?

5. Are the microforms generally positioned (roll microfilm threaded) in the reading machines by the staff or by readers?

6. Are the microform readers used by the general public?

7. Are the microform reading machines frequently damaged by inexperienced or careless users? What part or parts are most frequently damaged?

8. If the maintenance and repair of the microform reading machines are not done in-house, what is the average time the machine is inoperative before a serviceman arrives and accomplishes the repair?

9. Are the microforms frequently damaged by use? If they are, is damage caused by carelessness, inexperienced users, wear from frequent use, or by faulty reading machines?

10. What microforms in your experience are more prone to damage and/or loss?

11. Are presently available reading machines adequate for reader requirements for continuous and prolonged use?

12. Are advancing mechanisms (page to page) conveniently located for the user?

13. Are arrangements for positioning and removing microforms (reels, sheets, cards) in microform readers convenient to user requirements?

14. Do the height and angle of the reading screen allow the user to be in a comfortable and natural sitting position?

15. Are the images which appear on the reading screen usually as clear, sharp and as readable as the original?

16. Is it difficult to maintain the adjustment of the reader so that the corners and the center of the microform images are equally sharp?

17. Are the images which are provided on the reader screen sufficiently bright for the reader to work in an average lighted room?

18. Would you identify particular microforms--for example, roll microfilm, roll microfilm in cassettes, microfiche (normal), microfiche (high density)--which in your opinion are best suited for particular types of library materials, such as serials, monographs, manuscripts, report literature, etc.

HOLDINGS AND ACQUISITION POLICY

1. What kinds of microforms are used in your organization?

   a. 35 mm roll ( )
   b. 16 mm roll ( )
   c. 35 mm rolls with cartridges ( )
   d. 16 mm rolls with cartridges ( )
   e. strips cut from 35 mm rolls ( )
   f. strips cut from 16 mm rolls ( )
   g. strips cut from 35 or 16 mm rolls and inserted in channeled glasine jackets ( )
   h. Microcard 3" x 5" ( )
   i. Microprint (Boni) ( )
   j. Microfiche 3" x 5" ( ) 4" x 6" ( )
   k. Other

2. What is the size of your microform collection?

3. What would you estimate the rate of growth of your microform collection to be?

4. Are your microform acquisitions planned or incidental?

5. What sources do you consult to determine what is available in microform? Publishers' lists and catalogs, news releases, etc. Do you believe these sources are adequate? If not, how should they be supplemented?

6. Do you have priority criteria for acquiring microforms?

QUALITY, MAINTENANCE AND SERVICING OF COLLECTIONS

1. Does your organization have facilities to make facsimile-size prints from microforms? Are these prints made in a laboratory or through the use of a reader-printer? What purpose do these prints serve and how is their cost financed?

2. Are microforms which are added to your collections inspected before being placed on the shelf? How, and with what results?

3. Are the microforms carefully inspected for damage or loss after each use? How, and with what results?

4. Are special storage facilities provided for your microforms? Are they fireproof? Are they temperature and humidity controlled?

5. Are use copies of microforms stored with master negatives?

6. What are master negatives used for ?

7. What problems are experienced in shelving microforms, both master negatives and use copies?

PRODUCTION AND PROCESSING OF MICROFORMS

1. Does your organization have the facility to produce microform camera negatives? If so, which, if any, of the following cameras is used?

    a. 16 mm rotary camera ( )
    b. 16 mm flatbed ( )
    c. 35 mm flatbed ( )
    d. step and repeat camera ( )

2. Does your organization use in-house processing facilities or does it use commercial facilities? If in-house facilities are used, state what kind?

3. Does your organization have facilities to produce film copies from existing microforms?

a. silver copies: roll microfilm ( ) microfiche ( )
b. Diazo copies: roll microfilm ( ) microfiche ( )
c. Kalvar copies: roll microfilm ( ) microfiche ( )
d. aperture cards

4. What percentage of microforms acquired by your organization is produced in-house? What percentage is produced to order by a microform service company? What percentage is purchased from microform publishers?

5. In your opinion is sufficient thought given to the arrangement of material i.e., subject, sequence, chronology, before it is committed to microform?

BIBLIOGRAPHIC CONTROL AND ACCESS TO MICROFORMS

1. What problems are experienced in cataloging microforms for addition to your collections?

2. Do you consider the cataloging of large microform projects to be the responsibility of the producer?

3. Do you think adequate attention has been given to this problem? How do you suggest it be dealt with?

4. Is adequate attention given to indexing targets and other finding aids?

5. Are the bibliographic data normally recorded on microforms adequate and sufficiently accurate for library requirements? Do they contain bibliographic targets, indicate incorrect pagination found in original, missing pages or issues, illegible and mutilated pages, etc.?

6. Are your microfilm collections segregated from other collections?

7. How are the items in your microform collections listed and identified?

8. Would you prefer that a library call number appear on the container box or that a sequential number be assigned to items in the collection?

READER HABITS AND ATTITUDES

1. Do your users prefer reading machines with the transluscent type screens or the opaque reflective type?

2. Do your readers complain of eye strain caused by screen brightness or eye strain or dizziness caused by images moving across the screen when pages are changed?

3. Do readers demand blowup prints of those items required for study?

4. Do reader-printers generally satisfy readers' requirements for blowups? Are satisfactory prints usually obtained with the first try or are one or more trial exposures required on the reader-printer? What kind of reader-printer do you have?

5. Are preferences expressed by readers for particular types of microforms?

6. Are such preferences substantiated by specific and valid reasons?

GENERAL RESPONSE TO MICROFORM USAGE

1. What is your evaluation of microforms based on your organization's use of them? What can they do? What can't they do? What would you like them to do?

2. Are there complaints from readers because material desired is available in microform only?

3. Are there complaints from readers because the microforms are of inferior quality? For example, are the images too dark, too light or too fuzzy? Is the text in the gutturs of volumes not readable? Is a portion of the page cut off at time of photographing? Are fold-out charts too small to read? Is the material out of focus? Is sectionalizing unintelligently performed? Etc.

4. Are microform images often difficult to read because:

    a. the microforms were made at a greater reduction ratio than the enlargement ratio of the available microform reading machine;

    b. the microforms were made at a lesser reduction ratio than the enlargement ratio of the available microform reader (entire microform frame of text reading left to right cannot be viewed in reader screen without adjustment)?

5. Do readers find microforms reasonably satisfactory for "browse" searching?

Interviewing Guide "B" : For use when interviewing users of microforms

GENERAL: IDENTIFYING AND DEFINING THE PROBLEM

1. Are the environment and facilities in the room in which microform readers are generally located conducive to the use of microforms? For example, are there ambient light controls, and dirt and dust control? Is the room air-conditioned or otherwise adequately ventilated? Are there functional auxiliary work tables etc.?

2. Are the microforms generally positioned (roll microfilm threaded) in the reading machines by the staff or by readers?

3. Are presently available reading machines adequate for your requirements for continuous and prolonged use?

4. Are advancing mechanisms (page to page) conveniently located for you?

5. Are arrangements for positioning and removing microforms (reels, sheets, cards) in microform readers convenient to your requirements?

6. Do the height and angle of the reading screen allow you to be in a comfortable and natural sitting position?

7. Is it difficult to maintain the adjustment of the reader so that the corners and the center of the microform images are equally sharp?

8. Are the images which are provided on the reader screen sufficiently bright for you to work in an average lighted room?

MAINTENANCE AND SERVICING OF COLLECTIONS

1. Are you inconvenienced by readers being out of order?

BIBLIOGRAPHIC CONTROL AND ACCESS TO MICROFORMS

1. Are the bibliographic data normally recorded on microforms adequate and sufficiently accurate for your requirements? Do they contain bibliographic targets, indicate incorrect pagination found in original, missing pages or issues, illegible and mutilated pages, etc?

2. What kind of bibliographic aids would you like to see included?

Interviewing Guide "B"

READER HABITS AND ATTITUDES

1. Do you prefer reading machines with transluscent type screens or the opaque, reflective type?

2. Do you experience eye strain caused by screen brightness or eye strain or dizziness caused by images moving across the screen when pages are changed?

3. Do you require blowup prints of those items required for extensive study?

4. Do you have a preference for particular types of microforms?

GENERAL RESPONSE TO MICROFORM USAGE

1. What is your evaluation of microforms based on your use of them? What can they do? What can't they do? What would you like them to do?

2. Do you find microforms reasonably satisfactory for "browse" searching?

APPENDIX B

ARL MICROFORM TECHNOLOGY PROJECT

Institutions Visited and Persons Interviewed
by
Principal Investigator and Consultative Panel

November 1968 - January 1969

California State College Library, Fullerton, California

Mr. Ernest Toy, Librarian

Center for Research Libraries, Chicago, Illinois

Mr. Gordon Collier, Assistant Director
Miss Smith, Acquisitions Librarian

Chemical Abstracts Services, Columbus, Ohio

Mr. Heilman, Director, Service Division
Mr. McDonald, Manager of Marketing
Mr. James Wood, Librarian

Columbia University Library, New York, N. Y.

Mr. H. Ballou, Head, Photographic Services
Mr. Erle Kemp, Head, Acquisitions and Binding
Mr. Richard Logsdon, Director of Libraries
Miss Mary Lou Lucy, Librarian, Butler Library
Mr. Ellis Mount, Science & Engineering Librarian
Mrs. Casper, Microform Reading Room

Denver Research Institute, Denver, Colorado

Mr. James Kottenstette, Research Engineer
Mechanical Science & Environmental
Engineering Division

The Genealogical Society, Church of Jesus Christ of the Latter Day Saints, Salt Lake City, Utah

Mr. George Fudge
Mr. Van a Nieswender

Harvard University Library, Cambridge, Massachusetts

Mr. Douglas Bryant, University Librarian
Mr. Frazier, Head, Photographic Services
Mr. McCardy, Head, Automation and Photography
Miss Pepall, Chief, Documents and Microform Reading Room

Hoover Institution Library, Stanford, California

Mr. Glazier, Librarian, Western Language Collections
Mrs. Paul, Head, Reference Department

International Business Machines

Mr. Joseph Cahill - Poughkeepsie
Mr. Allan Merritt - Armonk
Mr. Jack Rubin - Dayton
Mr. Milan Shirhall - San Jose
Mr. Karn Tackle - San Jose
Mr. Arthur Wasche - Poughkeepsie

John Crerar Library, Chicago, Illinois

Mr. William Budington, Director

Library of Congress, Washington, D. C.

Mr. Bernard Bernier, Head, Reference Services, Serial Division
Mr. Robert Gross, Head, Microfilm Reading Room

Massachusetts Historical Society, Boston, Massachusetts

Mr. John Cushing, Librarian
Mr. Stephen Riley, Director

Massachusetts Institute of Technology, Cambridge, Massachusetts

Mr. Joseph Dagnese, Asst. Dir. in charge Tech. Services
Mr. William Locke, Director of Libraries
Mr. Carl Overhage, Director, Project INTREX
Mr. Peter Scott, Head, Microreproduction Laboratory

Microphoto Division of Bell & Howell, Cleveland, Ohio

Mr. Mandell, Manager

National Archives, Washington, D. C.

Mr. Herbert Angell, Deputy Archivist
Mr. Frank Hepner, Chief, Reference Division
Mrs. Mary Johnson, Asst. Chief, Reference Division

National Library of Medicine, Bethesda, Maryland

Mr. Thomas Bagg, Technical Consultant
Mr. Edward Miller, Deputy Chief, Reference Division

New York Public Library, New York, N. Y.

Mr. Brower, Supervisor, Microform Reading Room
Mr. DiRoma, Chief, Economics Division
Mr. Fielstra, Head, Photographic Services
Mr. James Henderson, Chief of Research Libraries
Mr. Mintz, Chief, Stack Maintenance and Delivery
Mr. Tobin, Chief, Information Division

Stanford University Library, Stanford, California

Mr. Joseph A. Belloli, Head, Humanities and Social Science Division Libraries
Mrs. Fair, Documents and Microforms
Mr. Rutherford Rogers, Director of Libraries
Mr. Allen Veaner, Assistant Director for Automation
Mr. David Weber, Associate Director

University Microfilms, Ann Arbor, Michigan

Mr. Rice, Manager, Product Development and Publishing

University of California Library, Berkeley, California

Professor Arthur Askins, Department of Spanish
Mr. Davis, Documents Division
Mrs. Dorothy Kesseli, Serials & Documents Division
Professor Robert Middlekauff, Department of History
Mr. Parks, Head, Photographic Service
Mrs. Reed, Newspaper & Microforms
Mr. James Skipper, University Librarian
Mrs. Smith, Documents Division
Mrs. Helen Worden, Associate University Librarian

University of California Library, Los Angeles, California

Mr. Robert Collison, Head, Reference Department
Mr. James Cox, Head, Circulation Department
Mr. Hall, Head, Systems Staff
Mrs. Miller, Education and Psychology Librarian and Coordinator for ERIC
Mr. Everett Moore, Assistant University Librarian
Mrs. Mary Ryan, Head, Government Publications
Mrs. Johanna Tallman, Engineering and Mathematics Library
Mr. Harry Williams, Head, Photographic Service

University of Chicago Library, Chicago, Illinois

Mr. Herman Fussler, Director
Mrs. Newton, Head, Microform Documents
Staff member in charge of Microform Reading Room

University of Delaware Libraries, Newark, Delaware

Mr. John Dawson, Director

University of Michigan Libraries, Ann Arbor, Michigan

Mr. John Gantt, Head, Photographic Service
Mr. Rolland Stewart, Associate Director of Libraries
Graduate Library Librarian in charge of microforms

University of Southern California, Los Angeles, California

Mr. Emil Schafer, Library Systems Analyst
Frances Spreitzer, Head of Photographic Services

State Historical Society of Wisconsin Library, Madison, Wisconsin

Mr. Ballard Campbell, Graduate Student-American Political History
Mr. Michael Holmes, Graduate Student-History
Mr. Charles Shetler, Librarian
Mr. Richard Zeitlin, Graduate Student-American History

Mr. William Hawken, Consultant to ALA Library Technology Project, Berkeley, California